

# Nithin Kamal

ML ENGINEER, SOFTWARE ENGINEER, FULL STACK DEVELOPER

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## Programming Languages

Python, TypeScript, JavaScript, Bash, SQL and C++.

## Experience

**Fraunhofer IKS, Software Engineer (Student) – Self Adaptive Systems** | Munich, Germany

July 2023 - Jan 2024

- Researched and defined the components in a highly critical autonomous system to optimize performance and enhance reliability.
- Researched and classified elements within the dynamic environment of an autonomous system, facilitating efficient grouping.
- Enabled and shipped remote configuration of parameters within the system, contributing to a productivity increase of 20%.
- Facilitated cooperation and increased productivity for a team of over 150 members by developing a platform for collaboration.
- Developed and deployed features, improving user experience and increasing user engagement by 200%.

**BMW Group, Master's Thesis – Machine Learning Engineer** | Munich, Germany

Oct 2022 - July 2023

- Achieved 30% increase in robustness for state-of-the-art computer vision based anomaly detection (AD) algorithms in industrial scenarios through the design and development of a novel approach.
- Conducted and reported a comprehensive study of the state-of-the-art AD algorithms with extensive research and experimentation.
- Investigated and optimized the influence of domain shifts and augmentations during test time to enhance the robustness and increase the accuracy of anomaly detection algorithms.
- Researched and conducted experiments to evaluate manifold latent representations to optimize resource utilization.
- Developed and implemented the training and testing pipelines for the multi-view anomaly detection approach.

**BMW Group, Intern – Robotic Software Engineer** | Munich, Germany

Apr 2022 - Oct 2022

- Boosted the productivity of a team of 16 members by designing and implementing solutions for remote monitoring and configuration of the robot and inspection parameters.
- Enhanced the performance and safety of the robot by integrating additional sensors and enforcing safety limits.
- Boosted productivity with end-to-end development of a scalable web app based on distributed and containerized microservices.
- Developed graphical user interfaces and finite state machines for the robotic system for optimized performance.

**Indurad GmbH, Software Developer (Student) – Full Stack Developer** | Aachen, Germany

Apr 2021 - Apr 2022

- Developed interactive and scalable web apps and visualizations with 50+ new features and upgrades across 3 products, delivering improved customer experience.
- Optimised UI and APIs resulting in 40% reduction in loading time, enhancing user experience and reducing resource utilization.
- Researched and reported on technologies to be utilized/ adopted within the projects, reducing operational costs.

**Kimball Electronics : Software Engineer – Full Stack Developer** | Trivandrum, India

Nov 2019 - May 2019

- Planned, designed, developed and deployed 30+ features and upgrades, enhancing customer experience and productivity.
- Achieved 20% increase in productivity of the development team by designing and implementing scalable and containerized microservices for automated data flows.
- Actively contributed to the development of standard practices within the team, resulting in a 40% reduction in development time and a 50% reduction in bugs during final testing.
- Researched and implemented automated monitoring and notification in a large-scale, time-series database, driving efficiency, quality and lowering costs.

**Shunyeeka Systems Pvt Ltd. : Consultant – Full Stack Developer** | Bengaluru, India

Aug 2019 - Nov 2019

- Achieved improved user engagement and user experience through UI migration and responsive web design.
- Optimized operational costs by integrating AWS Cognito Auth, AWS Lambda and Stripe payments.

**VectorFlow Labs Pvt Ltd. : Software Engineer – Full Stack Developer** | Bengaluru, India

Oct 2018 - Nov 2019

- Designed and developed responsive and interactive data visualizations for comprehensive monitoring and inference.
- Core participation in the planning and design of the startup's key product and developed 50+ features for an enterprise web app, including chat assistant and real-time multi-platform notification, delivering an impactful customer experience.

## Education

**Master of Science, Robotic Systems (AI and ML Specialization)** | RWTH Aachen, Germany

Nov 2020 - Sep 2023

- Main courses - **Advanced Machine Learning, Computer Vision**, Robotic Systems, Reinforcement Learning and Learning-based Control, Strategic Technology Management, Applied Numerical Optimization, Artificial Intelligence.

**Bachelor of Technology, Electronics and Communication Engineering** | University of Kerala, India

Aug 2013 - Nov 2017

- Main Courses - Digital Signal Processing, Image Processing, Information Theory and Coding, Microprocessors and Micro-controllers, Computer Organization and Architecture, Control Systems.

## Skills

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<b>AI and ML</b>	Pandas, Numpy, JAX, <b>PyTorch</b> , <b>TensorFlow</b> , Keras, SciKit-learn, Jupyter, Data Analysis, Numerical Optimization, 3D Images, <b>Generative AI</b> , <b>Large Language Models</b> , <b>LangChain</b> , <b>Transformers</b> , <b>Deep Learning</b> , <b>Computer Vision</b> , <b>Machine Learning</b> , <b>Natural Language Processing</b> (NLP).
<b>Web Development</b>	<b>React</b> , <b>Next.js</b> , <b>Tailwind CSS</b> , HTML, CSS, WebSockets, Plotly, <b>Data Visualization</b> , <b>REST API</b> , <b>GraphQL</b> , <b>Node.js</b> , Express.js, Flask, ES6, Server Side Rendering
<b>Cloud &amp; DevOps</b>	<b>Git</b> , <b>Docker</b> , AWS, CI/CD, Windows, Linux, MQTT, Vercel, GitLab, Jenkins, Microsoft Azure
<b>Databases</b>	PostgreSQL, MySQL, MongoDB, InfluxDB
<b>Methodology</b>	<b>Agile</b> , <b>Test Driven Development</b> , Scrum, Kanban, Pair Programming, Code Review
<b>Others</b>	<b>ROS(Robot Operating System)</b> , <b>Data Structures and Algorithms</b> , <b>Design Patterns</b> , Shell Script, OOP (Object-Oriented Programming), Gazebo (Robotics Simulation), PyQt, JIRA, Functional Programming, Microsoft Office

## Certificates

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- **TensorFlow Professional Developer** - DeepLearning.AI
- **Generative AI with Large Language Models** - DeepLearning.AI
- **Python Specialization** - University of Michigan